

**Supplementary material A:** *The questionnaire for the assessment of the risk of Xylella fastidiosa potential establishment and spread on the main crops in the European Mediterranean countries, in the Balkans and in the Middle East North Africa region.*

### Question 1. Existence of a surveillance program

The availability of a surveillance program to combat *Xf* and/or other harmful quarantine organisms already programmed and/or tested allows reducing the risks of establishment and spread of the bacterium in the country thanks to the faster ability to intervene.

This parameter has been recognized as having a decisive influence and, therefore, a rather high partial coefficient ( $c= 0.2$ ) has been assigned to it.

<i>Answer option</i>	<i>Regulatory status</i>	<i>Risk Score</i>
1. <input type="checkbox"/> Yes and it is implemented	High status	(1) Low
2. <input type="checkbox"/> Yes, but it is not yet implemented	Medium status	(3) Medium
3. <input type="checkbox"/> No	Low status	(6) High

### Question 2. Presence of potential vectors

Considering that many *Hemiptera* species of sharpshooter leafhoppers (*Cicadellidae*), spittlebugs (*Cercopidae*) and cicadas (*Cicadidae*) are potential vectors of *Xf* strains, albeit with different transmission efficiency, and that one of the most efficient confirmed vector species, *Philaenus spumarius*, seems to be present in several Mediterranean countries, it is evident that the easy spread of the bacterium will be highly influenced by the presence of vector species, their transmission efficiency and their spread. A large range of additional potential vectors has yet to be studied. Given the low importance attributed in the past to this group of species due to the low direct damage to plants (their importance has been strongly re-evaluated in agriculture for indirect damage as vectors of pathogens), there is currently little data in the literature that can provide precise information on their actual distribution in different countries.

This parameter has been recognized as having a decisive influence and therefore, a rather high partial coefficient ( $c= 0.25$ ) has been assigned to it.

<i>Answer option</i>	<i>Rate of spread</i>	<i>Risk Score</i>
1. <input type="checkbox"/> No potential vectors	Low rate	(1) Low
2. <input type="checkbox"/> Yes, but not abundant	Medium rate	(3) Medium
3. <input type="checkbox"/> Yes and abundant	High rate	(6) High

### Question 3: Suitability of the climate to the establishment and spread of *Xf*

There is a lack of data regarding the range of temperatures over which the bacterium can thrive, and this makes it very difficult to assess the limit to its distribution in the European Mediterranean countries, the Balkans and MENA region. In addition, climate can also affect the survival of the bacterium vectors, as well as that of its main and alternative plant hosts.

In general, extreme climatic conditions, such as those typical of arid or semi-arid areas or, *vice versa*, high altitude areas, can be considered as limiting factors for the establishment and spread of the bacterium.

This parameter has been recognized as having a decisive influence and therefore, a rather high partial coefficient ( $c = 0.25$ ) has been assigned to it.

<i>Answer option</i>	<i>Level of climate suitability</i>	<i>Risk Score</i>
1. <input type="checkbox"/> Less than 15%	Low level	(1) Low
2. <input type="checkbox"/> Between 15 & 30%	Medium level	(3) Medium
3. <input type="checkbox"/> More than 30%	High level	(6) High

### Question 4: Abundance of alternative hosts

It is well known that the high “polyphagia” is a characteristic that enhances the ability of establishment and spread of *Xf*, and that consequently complicates the possibilities of its containment or eradication. Today there are more than 600 known plant species that can be infected by this pathogen in its various subspecies, including cultivated and spontaneous species, herbaceous, shrubby and woody, present in cultivated fields, gardens, parks, woods and forests. As a result, the more abundant, in number and distribution, are the host plant species present in a country as an alternative to the cultivated species, the greater the risk of establishment and spread of *Xf*.

To this factor, a partial coefficient of 0.1 has been assigned.

<i>Answer option</i>	<i>Abundance level (average %)</i>	<i>Risk Score</i>
1. <input type="checkbox"/> Less than 25% of land area	Low level	(1) Low
2. <input type="checkbox"/> Between 25 & 50% of land area	Medium level	(3) Medium
3. <input type="checkbox"/> More than 50% of land area	High level	(6) High

**Question 5: Abundance of the main crops (olives, grapevines, citrus, almonds) in agricultural land**

The risks of establishment and spread of *Xf* are directly related to the diffusion in the country of the cultivated host species of the bacterial strain introduced. This risk, in particular, increases when these crops are present in certain areas almost exclusively, thus facilitating the dissemination work carried out by insect vectors.

Also to this factor, it has been assigned a correction coefficient of 0.1.

<i>Answer option</i>	<i>Abundance level (average %)</i>	<i>Risk Score</i>
1. <input type="checkbox"/> Less than 5% of agricultural area	Low level	(1) Low
2. <input type="checkbox"/> Between 5 & 10% of agricultural area	Medium level	(3) Medium
3. <input type="checkbox"/> More than 10% of agricultural area	High level	(6) High

**Question 6: Existence of national programs for the certification of the plant propagation material of the main crops**

Among the measures to counter the spread of *Xf*, the use of healthy plants is certainly among the most effective ones. It permits to avoid potential outbreaks of infection from which the disease can spread further, and to repopulate with a large margin of safety areas that have been subject to previous eradication programs. Therefore, countries with a functioning and efficient national certification system for propagating material will be more likely able to counteract the spread of the disease in their territory.

Also a partial coefficient of 0.1 has been assigned to this factor.

<i>Answer option</i>	<i>Regulatory status</i>	<i>Risk Score</i>
1. <input type="checkbox"/> Yes and it is implemented	High status	(1) Low
2. <input type="checkbox"/> Yes, but it is not yet implemented	Medium status	(3) Medium
3. <input type="checkbox"/> No certification program	Low status	(6) High